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DATASHEET

PRIMERGY RX300 S5

Issue: November 2009

Dual-Socket 2U Rack Server - Virtualization needs a reliable basis - RX300 S5 to meet the highest demands

The PRIMERGY RX Rack Server family is the perfect platform to form dynamic infrastructures for your business processes today and in the coming decade. You will thus benefit several times over from our recognized experience in optimized data center technology and our innovative strength in developing energy-efficient and cost/performance-optimized rack systems for universal use. PRIMERGY rack servers, built upon industry standards, focus from a functional viewpoint on core features: energy efficiency, reliability, optimized for virtualization, ease of operation and maintenance, flexibility for your future. And thus they notably meet your requirements for outstanding cost efficiency. Optimal operating costs and long-term usability comply with the IT quality required by your customers. Our responsibility goes way beyond the hardware as our tailor-made service packages mean that you can rely on the best support for your IT during its whole lifecycle.

PRIMERGY RX300 S5

The consolidation of dedicated servers and the use of efficient virtualized run environments provide measurable benefits and new flexibility regarding IT operations management. Virtual servers can thus be moved to other servers during ongoing operations and enable maintenance work to the hardware platform without any operational interruption. Active virtual servers can be flexibly moved to systems with higher performance for operation during peak-load times. Test systems can be very easily converted via live migration to production systems. Virtualized environments are the top application for RX300 systems and their new multi-core CPUs in the Intel® Xeon® 5500 series. In this situation, several operating systems plus the installed applications have to run simultaneously on one and the same physical hardware. RX300 S5 provides all the platform features required for efficient virtualization:

- High, scalable I/O performance with PCIe Gen2, x4/x8 Turbo mode, up to 7 free PCIe slots - so that disk I/O and network/SAN accesses do not become a bottleneck!
- The generosity of the maximum 144 GB main memory for a high-performance determinable, optimal sizing of the virtual server environment making the main memory never become the point of contention for Hypervisors, operating systems nor consolidated applications.
- Top performance with state-of-the-art Dual Quad or Turbo Quad-Core Intel® Xeon® 5500 series CPUs as well as double I/O performance with PCIe Gen2.0 - so that every virtual system can work at a higher performance level than before.
- The reliability of a premium server system in a space-saving 2 U design so that the cost benefits arising from standardized rack servers and virtual systems do not become a survival risk!The reliability of the RX300 server platform also leaves nothing to be desired in other application areas, e.g. as database servers or application servers for business-critical processes.

MAIN FEATURES	BENEFITS
■ Dual, Quad and Turbo Quad-Core CPU of the Intel Xeon processor 5500 series with up to 8 MB TLC and VT-x	■ More virtual machines and applications can be used on one server ■ More certainty that VMs run at high performance
■ Up to 144 GB state-of-the art DDR3 main memory ■ 7 PCIe Gen2 double I/O throughput ■ 2 x Gbit/s Ethernet LAN with VT-c (I/O acceleration and VMDq) ■ Patented IOOP (auto-accumulated from 2 x x4 to 1 x x8) ■ Choice between up to 12 x 2.5 or 6 x 3.5 inch hot-plug SAS and SATA hard disks	■ Double I/O bandwidth so that the combined SAN and network accesses achieve optimal throughput ■ Low-priced high-speed slot option ■ More than 6 TByte of low-priced internal hard disk memory
■ Certification for Hyper-V, VMware, Xen Hypervisor	■ Problem-free usage for market-relevant virtualization solutions
■ Memory sparing or mirroring option ■ Hot-plug redundant power supplies and fans, ■ Hot-plug hard disks ■ Cool-safe™ system design with high air thoughput ■ Integrated Remote Management Controller iRMC S2 plus optional iRMC Advanced Pack ■ Modular RAID for levels 0, 1, 5, 6,…. ■ Individual service packages	■ Particularly high levels of availability and reliability ■ Security level for each application scenario ■ Permanently high performance levels available, increased component lifespan, less heat ■ Easy, fast access from anywhere ensuring reliable operations ■ Low-priced, powerful data security
■ Highly efficient power supply units ≥89% and 92% (EPA-compliant) ■ Sensor-controlled fan management ■ Power consumption management ■ 2.5 inch hard disks with low consumption ■ Large slowly-rotating fans	■ Energy-efficient operations reduces stress not only for the data center cooling system but also for the budget ■ Individually defined profiles for power consumption prevent consumption levels being exceeded ■ Low noise levels and perfect heat dissipataion
■ ServerView Local Service Panel (LSP) or display (LSD) ■ Switchable service LAN (shared or dedicated) ■ Illuminated green controls for hot-plug components ■ Fully-extendable telescopic rails	■ Cost-reducing and pro-active customer self-service ■ Physically separated service access ■ Easy-to-use with standardized labelling ■ Comfortable rack installation and server operation
■ ServerView Suite - Proven tools for the efficient management of physical and virtual resources throughout the entire lifecycle: perfect installation - stable operations – secure updates - exact (remote) maintenance – easy integration in specific corporate management solutions	■ The key to high-level IT benefits and reduced operational and service costs: greater reliability, lower downtimes and improved service quality

TÜV SÜD

CERTIFIED FOR Windows Server 2008

intel Xeon inside

Green IT

Technical details

PRIMERGY RX300 S5			
Housing type	Rack	Rack	Rack
Hard disk architecture	12x 2.5” SAS/SATA	6x 3.5” SAS/SATA	8x 2.5” SAS/SATA

Mainboard	
Mainboard type	D 2619
Chipset	Intel® 5520
Processor quantity and type	1 - 2 x Intel® Xeon® processor 5500 series

Processor	
	Intel® Xeon® processor X5570 4C/8T, 2.93 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 2/2/3/3, 6.4 GT/s, Mem bus: 1333 MHz, 95 W)
	Intel® Xeon® processor X5560 4C/8T, 2.80 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 2/2/3/3, 6.4 GT/s, Mem bus: 1333 MHz, 95 W)
	Intel® Xeon® processor X5550 4C/8T, 2.66 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 2/2/3/3, 6.4 GT/s, Mem bus: 1333 MHz, 95 W)
	Intel® Xeon® processor W5590 4C/8T, 3.33 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/1/2, 6.4 GT/s, Mem bus: 1333 MHz, 130 W)
	Intel® Xeon® processor L5530 4C/8T, 2.40 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/2/2, 5.86 GT/s, Mem bus: 1066 MHz, 60 W)
	Intel® Xeon® processor L5520 4C/8T, 2.26 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/2/2, 5.86 GT/s, Mem bus: 1066 MHz, 60 W)
	Intel® Xeon® processor L5506 4C/4T, 2.13 GHz, SLC: 4 x 256 KB, TLC: 4 MB (Turbo: No, 4.8 GT/s, Mem bus: 800 MHz, 60 W)
	Intel® Xeon® processor E5540 4C/8T, 2.53 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/2/2, 5.86 GT/s, Mem bus: 1066 MHz, 80 W)
	Intel® Xeon® processor E5530 4C/8T, 2.40 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/2/2, 5.86 GT/s, Mem bus: 1066 MHz, 80 W)
	Intel® Xeon® processor E5520 4C/8T, 2.26 GHz, SLC: 4 x 256 KB, TLC: 8 MB (Turbo: 1/1/2/2, 5.86 GT/s, Mem bus: 1066 MHz, 80 W)
	Intel® Xeon® processor E5506 4C/4T, 2.13 GHz, SLC: 4 x 256 KB, TLC: 4 MB (Turbo: No, 4.8 GT/s, Mem bus: 800 MHz, 80 W)
	Intel® Xeon® processor E5504 4C/4T, 2.00 GHz, SLC: 4 x 256 KB, TLC: 4 MB (Turbo: No, 4.8 GT/s, Mem bus: 800 MHz, 80 W)
	Intel® Xeon® processor E5502 2C/2T, 1.86 GHz, SLC: 2 x 256 KB, TLC: 4 MB (Turbo: No, 4.8 GT/s, Mem bus: 800 MHz, 80 W)

Memory slots	18 (9 DIMMs per CPU, 3 channels with 3 slots per channel)
Memory slot type	DIMM (DDR3) registered
Memory capacity (min. - max.)	2 GB - 144 GB
Memory protection	Advanced ECC Memory Scrubbing SDDC (Chipkill™) Hot-spare memory support Memory Mirroring support
Memory notes	max. 144 GB registered; min. 2 GB registered; Memory Mirroring with 2 identical modules, Hot-spare Memory with three identical modules per channel

Memory Modules Independent Mode	
	2 GB (1 module(s) 2 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	2 GB (1 module(s) 2 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	4 GB (1 module(s) 4 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	4 GB (1 module(s) 4 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	8 GB (1 module(s) 8 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	8 GB (1 module(s) 8 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600

Memory Modules Mirrored Mode	
	4 GB (2 module(s) 2 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	4 GB (2 module(s) 2 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	8 GB (2 module(s) 4 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	8 GB (2 module(s) 4 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	16 GB (2 module(s) 8 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	16 GB (2 module(s) 8 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600

Memory Modules Performance Mode	6 GB (3 module(s) 2 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	6 GB (3 module(s) 2 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	12 GB (3 module(s) 4 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	12 GB (3 module(s) 4 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
	24 GB (3 module(s) 8 GB) DDR3, registered, ECC, 1066 MHz, PC3-8500
	24 GB (3 module(s) 8 GB) DDR3, registered, ECC, 1333 MHz, PC3-10600
Interfaces	
USB ports	10 x USB 2.0 (3x front, 4x rear, 2x internal for backup devices plus 1x USB stick)
Graphics (15-pin)	2 x VGA (thereof 1x front optional)
Serial 1 (9-pin)	1 x serial RS-232-C, usable for iRMC or system or shared
Serial 2 (9-pin)	1 x serial RS-232-C
LAN / Ethernet (RJ-45)	2 x Gbit/s Ethernet
Service LAN (RJ45)	1 x dedicated service LAN port for iRMC S2 (10/100 Mbit/s) Service LAN traffic can be switched to shared onboard Gbit LAN port
Onboard or integrated Controller	
RAID Controller	Integrated RAID 0/1 or RAID 5/6 controller for SAS base units (occupies one PCIe slot, if at least 1 HDD is configured). See under Components RAID controller
SATA Controller	ICH10B, with two SATA channels for DVD + backup
LAN Controller	Intel® 82575EB , 2 x 10/100/1000 Mbit/s Ethernet (I/O acceleration), VT-c (I/O acceleration and VMDq), PXE boot via LAN from PXE server, iSCSI boot (also diskless) via onboard LAN
Remote Management Controller	Integrated Remote Management Controller (iRMC S2, 32 MB attached memory incl. graphics controller), IPMI 2.0 compatible
Trusted Platform Module (TPM)	Infineon / separate module; TCG V1.2 compliant (option)
Slots	
PCI-Express Gen2 x4	5 x low profile
PCI-Express Gen2 x8	2 x low profile , both are notched x8 slot as well for x16 cards
Slot Notes	Two of four PCI-Express Gen2 x4 slots can be used as x8, if neighbour slot is empty. One PCIe Gen2 x4 slot may be occupied with a modular RAID controller if configured.
Drive bays	
Hard disk bays	12 x
Hard disk bay configuration	6x 3.5-inch, for SAS / SATA or 8 or 12x 2.5-inch for SAS optional
Accessible drive bays	1 x 5.25/0.5-inch for CD-RW/DVD 1 x 3.5/0.5-inch for ServerView Local Service Panel or Local Service Display 1 x 3.5/1.6-inch for backup devices (occupies 2x 3.5-inch HDD for basic unit 6x 3.5-inch)
Notes accessible drives	All possible options described in relevant system configurator.
General system information	
Number of fans	5
Fan configuration	Hot-plug
Operating panel	
Operating buttons	On/off switch NMI button Reset button
Status LEDs	System status (amber / yellow) Identification (blue) Hard disks access (green) Power (amber / green) At system rear side: System status (amber / yellow) Identification (blue) LAN connection (green) LAN speed (green / yellow)
Service display	Optional: ServerView Local Service Panel (LSP) ServerView Local Service Display (LSD)

BIOS	
BIOS features	ROM based setup utility Recovery BIOS BIOS settings save and restore Local BIOS update from USB device Online update tools for main Windows and Linux versions Local and remote update via ServerView Update Manager SMBIOS V2.4 Remote PXE boot support Remote iSCSI boot support
Operating system	
Supported operating systems	Microsoft® Windows Server® 2008 Microsoft® Windows Server® 2003 Novell SUSE Linux Enterprise Server Red Hat Enterprise Linux Citrix® XenServer™ VMware Infrastructure VMware vSphere 4.0 Note: Support of other Linux derivatives on demand
Operating system release link	http://ts.fujitsu.com/software http://docs.ts.fujitsu.com/dl.aspx?id=a9e600b9-e4cb-4f48-aa41-632f69058421
Server Management	
Standard	ASR&R Automatic Server Recovery and Restart PDA Prefailure Detection and Anaylsis ServerView Suite: SV Installation Manager SV Operation Manager SV RAID Manager SV Update Management SV Power Management SV Agents Online update packages for BIOS, firmware drivers and ServerView Agents ServerView Integration solutions for Microsoft SMS, MOM, SCOM, SCCM and Altiris Deployment Solution ServerView Deployment Manager (fully functional 30-day trial version) ServerView Deployment Manager (fully functional 30-day trial version)
Option	ServerView Integration for Tivoli TEC®, Tivoli NetView, HP NNM and HP Operations Manager iRMC S2 Advanced Pack
Server Management notes	Regarding Operating System dependencies for ServerView Suite Software Products see dedicated Product Data sheets.
Dimensions / Weight	
Rack (W x D x H)	482.6 x 770 x 85.9 mm
Mounting Depth Rack	730 mm
Height Unit Rack	2 U
19” rackmount	Yes
Weight	up to 25 kg
Weight notes	Weight may vary depending on actual configuration
Rack integration kit	Rack integration kit as option
Floor-stand (W x D x H)	
Rack (W x D x H)	
Environmental	
Noise emission	Measured according to ISO 7779 and declared according to ISO 9296
Sound pressure (LpAm)	45 dB(A) (idle) / 45 dB(A) (operating)
Sound power (LWAd; 1B = 10dB)	6.2 B (idle) / 6.2 B (operating)
Operating ambient temperature	10 - 35°C
Operating relative humidity	10 - 85 % (non condensing)

The following products use less energy and reduce greenhouse gas emissions by meeting the strict Energy Star guidelines.

LKN:R3005S0021IN
For configuration details see link below.

http://ts.fujitsu.com/products/standard_servers/e_efficient.html

Electrical values	
Power supply configuration	hot-plug power supply as standard, redundancy as option (1 + 1 redundancy)
Max. output of power supply	800 W
Hot-plug power supply redundancy	Yes
Rated voltage range	100 - 240 V
Rated frequency range	50 - 60 Hz
Rated current max.	8.0 A – 3.5 A (100 V / 240 V)
Rated current in basic configuration	4.2 A - 1.4 A (100 V / 240 V)
Active power max. (per system unit)	733 W
Apparent power max. (per system unit)	737 VA
Heat emission	2638.8 kJ/h (2501.7 BTU)

Compliance	
Germany	GS
Europe	CE
USA/Canada	CSAc/us FCC Class A
Global	CB RoHS (Restriction of hazardous substances) WEEE (Waste electrical and electronical equipment)
Japan	VCCI
Australia/New Zealand	C-Tick
Compliance notes	There is general compliance with the safety requirements of all European countries and North America. National approvals required in order to satisfy statutory regulations or for other reasons can be applied for on request.
Compliance link	https://sp.ts.fujitsu.com/sites/certificates/default.aspx

Components

Hard disk drives	SSD SATA, 3 Gb/s, 64 GB, hot plug, 2.5-inch
	SSD SATA, 3 Gb/s, 32 GB, hot plug, 2.5-inch
	SATA, 120 GB, 5400 rpm, hot plug, 2.5-inch
	SATA, 3 Gb/s, 750 GB, 7200 rpm, hot plug, 3.5-inch
	SATA, 3 Gb/s, 500 GB, 7200 rpm, hot plug, 3.5-inch
	SATA, 3 Gb/s, 320 GB, 5400 rpm, hot plug, 2.5-inch
	SATA, 3 Gb/s, 250 GB, 7200 rpm, hot plug, 3.5-inch
	SATA, 3 Gb/s, 160 GB, 5400 rpm, hot plug, 2.5-inch
	SATA, 3 Gb/s, 1 TB, 7200 rpm, hot plug, 3.5-inch
	SAS, 6 Gb/s, 300 GB, 10000 rpm, hot plug, 2.5-inch
	SAS, 6 Gb/s, 146 GB, 15000 rpm, hot plug, 2.5-inch
	SAS, 6 Gb/s, 146 GB, 10000 rpm, hot plug, 2.5-inch
	SAS, 6 Gb/s, 73 GB, 15000 rpm, hot plug, 2.5-inch
	SAS, 3 Gb/s, 450 GB, 15000 rpm, hot plug, 3.5-inch
	SAS, 3 Gb/s, 300 GB, 15000 rpm, hot plug, 3.5-inch
	SAS, 3 Gb/s, 300 GB, 10000 rpm, hot plug, 2.5-inch
	SAS, 3 Gb/s, 146 GB, 15000 rpm, hot plug, 3.5-inch
	SAS, 3 Gb/s, 146 GB, 15000 rpm, hot plug, 2.5-inch
	SAS, 3 Gb/s, 146 GB, 10000 rpm, hot plug, 2.5-inch
	SAS, 3 Gb/s, 73 GB, 15000 rpm, hot plug, 3.5-inch
	SAS, 3 Gb/s, 73 GB, 15000 rpm, hot plug, 2.5-inch
	SAS, 3 Gb/s, 73 GB, 10000 rpm, hot plug, 2.5-inch
Hard disk notes	Mix of 3.5-inch SAS and SATA HDD is possible but requires separate RAID sets One Gigabyte equals one billion bytes, when referring to hard disk drive capacity. Accessible capacity may vary, also depending on used software
Tape Drives	DDS Gen5 (for 3.5-inch HDD bay), 36 GB , 3 MB/s, half height, USB 2.0
	DDS Gen5 3.5”, 36 GB , 3 MB/s, half height, USB 2.0
	RDX Drive (for 3.5-inch HDD bay), 80 GB, 160 GB, 320 GB , 25 MB/s, half height, USB 2.0
	RDX Drive 3.5”, 80 GB, 160 GB, 320 GB , 25 MB/s, half height, USB 2.0
Optical drives	Blu-ray combo drive, (2x BD-ROM; 8x DVD; 24x CD), slimline, SATA I
	DVD Super Multi, (8xDVD/DVD+RW, 6xDVD-RW, 5xDVD-RAM; 24xCD/CD-R, 16xCD-RW), slimline, SATA I
SCSI / SAS Controller	SCSI Ctrl 320 MB 1x int /1x ext
	SAS Ctrl 3 Gb 4 ports int. / 4 ports ext.
RAID Controller	RAID 5/6 Ctrl, SAS/SATA 3 Gb, LSI MegaRAID SAS8880E, 8 ports ext. RAID level: 0, 1, 10, 5, 50, 6, 60, 512 MB Cache, optional BBU (based on LSI 1078)
	Integrated RAID 5/6 Ctrl, SAS 6 Gb, 8 ports int. RAID level: 0, 1, 10, 5, 50, 6, 60, 512 MB Cache, optional BBU (based on LSI SAS2108)
	Integrated RAID 5/6 Ctrl, SAS/SATA 3 Gb, 8 ports int. RAID level: 0, 1, 10, 5, 50, 6, 60, 512 MB Cache, optional BBU (based on LSI 1078)
	Integrated RAID 5/6 Ctrl, SAS/SATA 3 Gb, 8 ports int. RAID level: 0, 1, 10, 5, 50, 6, 60, 256 MB Cache, optional BBU (based on LSI 1078)
	Integrated RAID 0/1 Ctrl, SAS/SATA 3 Gb, 8 ports int. RAID level: 0, 1, 1E, no BBU support (based on LSI 1068e)
Fibre Channel controller	Fibre Channel Ctrl 2 x 4 Gb Emulex LPe11002 MMF LC
	Fibre Channel Ctrl 1 x 4 Gb Emulex LPe1150 MMF LC
	Fibre Channel Ctrl 1 x 4 Gb Qlogic QLE2460 MMF LC
	Fibre Channel Ctrl 2 x 4 Gb Qlogic QLE2462 MMF LC
	Fibre Channel Ctrl 2 x 8 Gb Emulex LPe12002 MMF LC
	Fibre Channel Ctrl 1 x 8 Gb Emulex LPe1250 MMF LC

LAN Controller	Ethernet Ctrl 1 x 1 Gb Intel® Gigabit CT Desktop Adapter
	Ethernet Ctrl 1 x 1 Gb Intel® PRO/1000 PF Server Adapter
	Ethernet Ctrl 1 x 1 Gb Intel® PRO/1000 PT Server Adapter
	Ethernet Ctrl 2 x 10 Gb Intel® 10 Gigabit XF SR Dual Port Server Adapter
	Ethernet Ctrl 2 x 1 Gb Intel® PRO/1000 PT Dual Port Server Adapter
	Ethernet Ctrl 4 x 1 Gb Intel® PRO/1000 PT Quad Port Server Adapter
LAN Controller notes	Ethernet Ctrl 1 x 1 Gb Intel® Gigabit CT Desktop Adapter requires RHEL 4.8 or higher
Rack infrastructure	Cable Arm 2U for 3rd party racks
	Cable Management for 19-inch DataCenter / PRIMECENTER Racks
	Rackmount kit full extraction (760mm), tool less mounting
	Rackmount kit partly extraction (524mm), tool less mounting
Warranty	
Standard Warranty	3 years
Service level	On-site Service (depending on country)
Maintenance and Support Services - the perfect extension	
Recommended Service	7x24, Onsite Response Time: 4h
Spare Parts availability	5 years
Service Weblink	http://ts.fujitsu.com/Supportservice

Information about environmental care, policies, programs and our Environmental Guideline FSC 03230:
http://ts.fujitsu.com/aboutus
Take back and Recycling information:
http://ts.fujitsu.com/recycling

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